

Electrical properties of single ...

30952

S/516/61/000/000/009/030
E036 (B16)

$6 \times 10^{18} \text{ cm}^{-3}$. At temperatures above absolute zero, conduction occurs in the valence and impurity bands. No conduction occurs in the conduction band until room temperature and above. Calculation of carrier concentration and mobility can only be approximate as the anisotropy factors for the effective mass are unknown. On this basis the impurity band mobility is $0.75 \text{ cm}^2/\text{V sec}$ at 2.4°K . From the maxima of the Hall constant as a function of temperature the valence band hole mobility is $2300 \text{ cm}^2/\text{V sec}$ at 4.2°K and $510 \text{ cm}^2/\text{V sec}$ at 90°K . Calculations based on the variation of conductivity with magnetic field give $8800 \text{ cm}^2/\text{V sec}$ and $430 \text{ cm}^2/\text{V sec}$. The variation of the Hall constant and ρ_{xx}/H^2 with field at 4.2°K can be explained by the existence of two types of holes. Acknowledgments are expressed to Professor D.N. Nasledovyy for his interest in the work. There are 8 figures and 4 references: 3 Soviet-bloc and the following English language reference:
Ref. 4: C. S. Hung, Phys. Rev., 1950, v. 79, 727

Card 3/3

Electrical properties of single ...

30552
5/576/61/000/000/003/020
E036/E102

A sample was cut in the form of a parallelepiped with the faces perpendicular to the faces in the directions of the a , b and c crystallographic axes. The data reported here are with the b axis along the sample and the c axis over the cross section. The activation energies obtained from the $\log \rho - 1/T$ curves are 0.57 eV and 0.007 eV for the high and low temperature ranges respectively. Thermoelectric m.f.s with respect to copper are positive over the range -200 to about 400 K. The Hall constant is also positive in this range. At room and liquid oxygen temperatures the Hall constant (R_H) is independent of the magnetic field strength, but at 4.2 K R_H decreases with the field. At 90° the relative change of specific resistivity $\Delta \rho/\rho$ with magnetic field is linear with the square of the field (H^2). At 4.2 K however, $\Delta \rho/H^2$ decreases with the field intensity. In view of the known anisotropy, the variation of resistivity in a field of 5000 G was determined at 4.2 K as the sample was rotated about the b axis, and the anisotropic behavior confirmed. The low temperature behavior is similar to that of a type II medium with an acceptor concentration of about 10^{17} cm $^{-3}$, and can be explained by assuming an impurity band as an acceptor.

Card 2/3

30952
S/576/61/000/000/000/000
E036/E161

94.7700(1043,1160,1164)

AUTHORS: Andronik L.K. and Kolt M.V.

TITLE: Electrical properties of single crystals of cadmium selenide

SOURCE: Soveshchaniya po poluprovodnikovym materialam 4-5 Voprasy metallurgii i fiziki poluprovodnikov, prikladnyye i teoreticheskiye issledovaniya i obzorye splavov, fizika i khimiya splavov, sovetskoye i zarubezhnoye, Moscow, Izd-vo AN SSSR, 1961, Akademiya nauk SSSR, Institut metallurgii i fiziki, A. A. Baykova, Fiziko-tekhnicheskii institut, 16.40

TEXT: Single crystal CdSe has been little studied by Russian workers have established that its electrical properties are isotropic. In this article the electrical properties are reported for crystals in a single crystallographic direction in the temperature range 2.4 to 4.23 °K. Other data reported are the ρ curves (where ρ is the conductivity) I/T curves and thermoelectric T curves. The crystals were made by the Bridgman technique followed by two passages of a zone during zone refining in order to obtain uniform conductivity over some 9 cm of the crystal was obtained.

Card 1/3

Induced conductivity...

27949
S/185/60/005/004/008/021
D274/D306

gas (which traps carriers). Figures are given which show the dependence of the induced current I_c on the electron energy V and on the electron current I_e . It is evident from the figures that for CdTe-single crystals I_c increases non-linearly with V , whereas the dependence of I_c on I_e is linear for small accelerating voltages only. The sensitivity of single crystals of CdTe is much lower than that of cadmium sulfide or cadmium selenide crystals. Their photoconductivity is also lower. ZnSe crystals are sensitive to electron bombardment, but the observed effect was weaker than for CdTe. For ZnSe, the dependence $I_c(I_e)$ is linear, whereas $I_c(V)$ is non-linear. It is noted that ZnSe-crystals are less sensitive to visible light than CdTe-crystals. It is evident that for the same intensities of irradiation ($I_e V$), the induced conductivity is the greater, the smaller I_e or the greater V . With constant V the conductivity depends linearly on the intensity of irradiation. This confirms the theory developed by Ryvkin et al. (Zet. 3: 2077, 24, 961, 1954). Computations showed that the depth of penetration of primary electrons in CdTe varies from $4 \cdot 10^{-3}$ to $6.4 \cdot 10^{-3}$ cm.

Card 2/3

27949
S/185/60/005/004/003/021
D274/D306

9.4177 (1051,1114)

AUTHORS:

Symashkevych, A.V., Kot, H.V. and Panasyuk, L.M.

TITLE:

Induced conductivity in CdTe and ZnSe

PERIODICAL:

Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 4, 1960.
504-507

TEXT: The results of measurements are given of induced conductivity in thin films and single crystals of CdTe and single crystals of ZnSe, under electron bombardment with energies up to 3 - 3.5 KeV. The thin CdTe-films were obtained by vaporization of a large specimen on a glass base in a vacuum of the order of 10^{-5} mmHg. The ZnSe single crystals were obtained on the walls of a quartz container. The measurements were conducted by a method analogous to that of an earlier work by two of the authors. The dependence of the induced conductivity on the current intensity and on the energy of the primary electrons was investigated. The surface of the specimens was irradiated by an electron beam in order to remove adsorbed.

Card 1/3

81644

The Anisotropy of Some Electrical Properties of Zinc-antimonide Single Crystals

S/181/60/002/06/33/050
B006/B056

temperature ranges were investigated. The temperature dependence of conductivity and thermo-emf within the range of up to 100°C was investigated on one and the same cubic sample in three directions; for the purpose of investigating the Hall effect three parallelepipeds with certain axis orientation were cut out from this cube; on them, first the electrical conductivity at room temperature was measured, and the components of the conductivity tensor were determined, which agreed within the error limits with those measured on the cubic sample. The measurements were carried out on five crystals, but as the results obtained were nearly equal, only those obtained by measurements on one sample are given. Fig. 1 shows the temperature dependence of the three components of the conductivity tensor. At 325°K all three components show a jump. The

Hall-emf was measured at magnetic field strengths of up to 10^4 oe, and was positive within the entire temperature range. Only the three components of the Hall effect tensor R_{123} , R_{231} , and R_{312} were measured; Fig. 2 shows $\ln R_{ijk} = f(1/T)$. These coefficients are constant within the range of from 20°C to 60°C , but they vary for the various crystallographical

Card 2/3

24.7600

81644

S/181/60/002/06/33/050
B006/B056

AUTHORS: Kot, M. V., Kretsu, I. V.

TITLE: The Anisotropy of Some Electrical Properties of Zinc-antimonide Single Crystals

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1250 - 1255

TEXT: In the present paper the authors describe the method of obtaining ZnSb single crystals, the investigation of their electrical properties, and the results obtained by this investigation. First, the spectrally pure components were fused in quartz ampoules. From the polycrystalline samples thus obtained, single crystals were produced partly by the Bridgeman method and partly by zone melting. The ZnSb crystals were subjected to X-ray structural analysis at the Leningradskiy fiziko-tekhnicheskii institut AN SSSR (Leningrad Physicotechnical Institute of the AS USSR); the authors thank N. A. Goryunova, Doctor of Chemical Sciences, for her help in this matter. First, the influence exerted by tempering the samples upon their electric conductivity and the temperature dependence of the conductivity of the individual samples within various

Card 1/3

XX

Anisotropy of the Electrical Properties of
Cadmium Antimonide Single Crystals

81628

S/181/60/002/06/16/050
B122/B063

carrier concentration, wherefrom the hole concentration was determined for the single crystal by approximation. From the values obtained for the hole concentration, the following values were found for the mobility of the holes referred to the conductivity for both samples in the given axial directions: $u_{11}=730$, $u_{22}=1360$, $u_{33}=650$; and $u_{11}=980$, $u_{22}=1980$, $u_{33}=890$ $\text{cm}^2/\text{v}\cdot\text{sec}$; the values calculated without considering anisotropy are in approximate agreement with the values obtained from the investigations. The authors further measured the temperature dependence of the thermo-emf at a temperature gradient of 15°C by the compensation method. The signs of the thermo-emf correspond to the p-type conductivity. The crystals with high hole concentration were found to possess a lower anisotropy, this being the same for high and low temperatures. On the transition of impurity conductivity to intrinsic conductivity, anisotropy has no definite value. It has a minimum value with intrinsic conductivity and is equally large for all of the three axial directions. It was further established that the temperature dependence of p- and n-type conductivity is the same. CdSb has a forbidden zone width of ~ 0.57 eV. Finally, the authors thank Professor D. N. Nasledov for interest displayed. There are 5 figures and 9 references.

Card 3/4

X

Anisotropy of the Electrical Properties of
Cadmium Antimonide Single Crystals

81628

S/181/60/002/06/16/050
B122/B063

analysis of two samples (twofold and threefold recrystallization) are supplied. The temperature range was between the temperature of liquid hydrogen and 150°C. The electrical conductivity was determined by the compensation method with potentiometer ПНТБ-1 (PPTV-1). The CdSb crystal belongs to the symmetry class mmm and has three components of the conductivity tensor, which are independent of one another and which correspond to the three axial directions. At temperatures of over 20°C, the conductivity coefficient had a positive sign. At these temperatures, conductivity corresponded to that of natural semiconductors. The activation energy of conductivity amounted in all samples to 0.56 - 0.57 eV, regardless of the temperature dependence of the coefficient before the exponential. The authors further studied the temperature dependence of the Hall effect and of the conductivity in the magnetic field at temperatures of liquid oxygen. Also the components R_{ijk} of the Hall effect in the various axial directions were found to assume different values. They have positive signs, and remain constant at temperatures around 250°K, and at 340 - 370°K they all tend toward zero. A dependence was found to exist between the R_{ijk} and the

Card 2/4

81628

S/181/60/002/06/16/050
B122/B063

24.7700

AUTHORS: Andronik, I. K., Kot, M. V.TITLE: Anisotropy of the Electrical Properties of Cadmium Antimonide
Single Crystals 21

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1128 - 1133

TEXT: The article under review describes the preparation of cadmium antimonide single crystals which has hitherto been very difficult. The electrical properties of this single crystal were studied in three crystallographical directions perpendicular to one another. The orientation of these axes had been determined by N. A. Goryunova, Doctor of Chemical Sciences, at Leningradskiy fiziko-tekhnicheskii institut AN SSSR (Leningrad Institute of Physics and Technology AS USSR) to whom the authors express their gratitude. The single crystals were bred by the variation method and by zonal recrystallization at a pressure of 10^{-3} torr. The single crystals bred were repeatedly recrystallized in a hydrogen flow at atmospheric pressure up to an impurity degree of $10^{14}/\text{cm}^3$. Results obtained from the

Card 1/4

X

26.1421

32669

3/058/61/000/012/026/001
A058/A101AUTHORS: Kot, M. V., Tyrziu, V. G.

TITLE: Some optical properties of thin zinc telluride films

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1961, 198, abstract 12V301
("Uch. zap. Kishinevsk. un-t", 1960, no. 55, 15-19)

TEXT: The absorption and reflection spectra of polycrystalline ZnTe films prepared by the Vekshinskiy method and by evaporation from bulk specimens were investigated at 20°C. It was established that for thicknesses $d < 0.8 \mu$, optical properties depend on d , which is associated with the d dependence of film structure. A considerable effect of the excess of Zn and Te on the optical properties of films was noted. Vacuum-heating of stoichiometric films up to 420°C does not affect the spectra, i.e. the films are stable. Annealing in air in the range 250 - 400°C sharply changes the spectra, which is associated with film oxidation. The long-wavelength boundary of the natural absorption of ZnTe lies between 5,700 and 6,100 Å.

[Abstracter's note: Complete translation]

Card 1/1

X

24.7000

1160
1142
1136

30412

S/058/61/000/009/033/050
A001/A101

AUTHORS: Kot, M.V., Simashkevich, A.V.

TITLE: Electric conductivity of zinc telluride in thin layers

PERIODICAL: Referativnyy zhurnal. Fizika, no. 9, 1961, 216, abstract 9E299 ("Uch. zap. Kishinevsk. un-t", 1960, v. 55, 11 - 13)

TEXT: The authors studied electrical and optical properties of thin layers of zinc telluride obtained by simultaneous evaporation of Te and Zn or by direct evaporation of a massive specimen. The magnitude of specific conductivity of the layers turned out to be $\sim 10^{-5} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ (at room temperature). The activation energy, determined from temperature dependence of electric conductivity in the high-temperature region, is equal to $0.77 \pm 0.03 \text{ ev}$. All specimens investigated, as measurements of the sign of thermo-emf have shown, have p-conductivity. Photoconductivity in the specimens investigated was not detected. There are 5 references.

K. G.

[Abstracter's note: Complete translation]

Card 1/1

82487

S/137/60/000/005/006/006
A006/A002

Electric Conductivity and Secondary Emission of Thin Layers of the Cd-Sb System

the higher σ is. It is pointed out that the secondary emission depends on ionization not only of the lattice atoms but also of admixture atoms. The surface state has a substantial effect on the conditions of secondary electron emission and σ . ✓

S. S.

Card 2/2

Kot, M.V.

82487

S/137/60/000/005/006/009
A006/A002Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 5, p. 229, # 10783
24-7700AUTHOR: Kot, M.V.TITLE: Electric Conductivity ^r and Secondary Emission ^r of Thin Layers ^r of the
Cd-Sb System ^rPERIODICAL: Uch. zap. Kishinevsk. un-t., 1959, Vol. 39, pp. 91-97

TEXT: The author studied the connection between electric conductivity σ and the coefficient of secondary emission of thin layers ($\sim 0.5 \mu$) of the Cd-Se system. Films were produced by the Vekshinskiy method and by evaporation from massive specimens. The films were applied on glass supports (of 8-10 cm length and 1.5 cm width) in a vacuum (10^{-5} mm Hg) at 20°C . It was established that σ of the CdSe compound had a semi-conductor (hole) nature. Within the $20-100^\circ\text{C}$ range, the activation energy was ~ 0.5 ev, and the specific σ at 20°C was $0.1 \text{ ohm}^{-1} \text{ cm}^{-1}$. The coefficient of secondary emission increases monotonously with increasing σ . At raising temperatures the coefficient of secondary emission decreases the more,

Card 1/2

Kot, M.V.

82486

8/137/60/000/005/005/009
A006/A002

24.2700

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 5, p. 229, # 10782

AUTHORS: Kot, M.V., Mshenskiy, V.A.TITLE: Electric Properties of the Cu-Sb System in Thin Layers

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1959, Vol. 39, pp. 73-78

TEXT: The authors investigated the electric conductivity σ and thermo-emf of thin layers of the Cu-Sb system, obtained by the Vekshinskiy method. The evaporation conditions of the initial components were selected in such a manner that film sections of 0.2-1.5 thickness were obtained; this corresponded to the stoichiometric compositions of Cu_2Sb and Cu_3Sb . σ was measured by potentiometric and bridge methods. The thermo-emf was determined in respect to the Ni-electrodes. On the σ -curve no singular points were obtained, neither for Cu_2Sb nor for Cu_3Sb . On the thermo-emf curve there was one maximum for both "compounds". It is concluded that in the Cu-Sb system there is only one metallic compound at temperatures $\leq 1000^\circ\text{C}$, i.e. the Cu_2Sb (bertollide) which with excess of Cu or Sb, forms solid solutions and has an electron conductivity mechanism. At room temperature specific σ for $\text{Cu}_2\text{Sb} \sim 10^4 \text{ ohm}^{-1} \text{ cm}^{-1}$, and the differential thermo-emf is $50 \mu\text{v/degree}$.

Card 1/1

S. S.

81804

S/137/60/000/04/07/015

Electric Conductivity and Secondary Emission of the Mg_3Sb_2 Compound in Thin Layers

This is connected with the formation of surface acceptor levels. The coefficient of secondary emission at $20^\circ C$ is 2.6. At a raise of the temperature to $200^\circ C$, the ohm value increases and attains 3.2. The speed of initial electrons corresponding to the maximum coefficient of secondary emission is ~ 500 ev. There are 9 references.

S. S.

Card 2/2

81804

24.7700

S/137/60/000/04/07/015

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 4, p. 235
8376

AUTHORS: Kot, M.V., Kas'yan, V.A.

TITLE: Electric Conductivity and Secondary Emission of the Mg₃Sb₂ Compound
in Thin Layers

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1959, Vol. 39, pp. 55 - 62

TEXT: The authors investigated the electric conductivity σ and the secondary emission of thin Mg₃Sb₂ layers (0.2-0.5 μ), obtained on cold (20°C) and heated (up to 200°C) glass backings by evaporation of massive alloys, and by the Vekshinskiy method. To prepare Mg₃Sb₂, the authors used spectrally pure Mg and Sb containing $\leq 0.001\%$ of admixtures; σ was measured by the voltmeter-ampere-meter method. The secondary emission was studied by conventional methods. It is shown that, only at a slight Mg excess the thin Mg₃Sb₂ layers formed oxidize more rapidly than Mg. The compound having a stoichiometric composition or an Sb excess is stable in a vacuum and in a dry air atmosphere. The resistivity of layers at room temperature in a vacuum is 10^4 ohm cm and the energy gap is 1.0 eV. The sorption air reduces the resistivity of layers by several times.

Card 1/2

81805

S/137/60/000/04/08/015

Electric Conductivity of Thin Layers of the Antimony-Selenium System

relative low temperature range, the properties of the films are distorted by surface levels. The activation energy of thermoelectrons in the high temperature range ($\Delta E = 1.12$ ev) does not coincide with the known "red photoeffect limit" (1.17 ev) determined from the spectral characteristic of photoconductivity.

S. S.

4

Card 2/2

81805

24.7700

S/137/60/000/04/08/015

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 4, p. 236,
8381

AUTHORS: Kot, M.V., Molodyan, I.P.

TITLE: Electric Conductivity of Thin Layers of the Antimony-Selenium
System

PERIODICAL: Uch. zap. Kishinevsk, un-t, 1959, Vol. 39, pp. 49 - 53

TEXT: The authors studied the electric resistance R of thin layers of the Sb-Se system, obtained in the form of wedges by the Vekshinskiy evaporation method on a glass backing at a pressure of 10^{-5} mm Hg. The evaporation conditions of the components were selected in such a manner that the concentration of atoms in the center of the backing (thickness of wedges $> 0.2 \mu$) corresponded to the Sb_2Se_3 compound. The electric resistance was measured in the dark by the voltmeter-ampere-meter method using an M-21 galvanometer with a sensitivity of $2 \cdot 10^{-10}$ amp/mm. It was established that in a vacuum the films had the properties of massive polycrystalline layers. In an air atmosphere and within a

Card 1/2

81806

S/137/60/000/04/09/015

24.7700

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 4, p. 236
8382

AUTHORS: Kot, M.V., Kretsu, I.V.TITLE: Some Electrical Properties of Single Crystals of the ZnSb CompoundPERIODICAL: Uch. zap. Kishinevsk, un-t, 1959, Vol. 39, pp. 39 - 43

TEXT: The authors investigated the electric conductivity σ and the thermo-emf of single crystals of ZnSb (up to 1 cm in diameter and 5-7 cm length), grown from spectrally pure Zn and Sb by the modified Bridgeman method and by zone recrystallization. σ was determined by the potentiometric method using probes. Thermo-emf were determined with respect to Cu at a temperature gradient of 15-17°C. It was established that σ depended on the crystallographical orientations; when measured in two perpendicular directions at room temperature it differed by 0.5 ohm⁻¹ cm⁻¹. The sign of thermo-emf shows that within a range of 223-473°K, ZnSb has a hole mechanism of conductivity. The magnitude of differential thermo-

Card 1/2

SIMASHKEVICH, A.V.; KOT, M.V.; TYRZIU, V.G.

Some photoelectric properties of thin layers of cadmium and zinc selenides. Izv. vys. ucheb. zav.; fiz. no.4:52-58 '59.
(MIRA 13:3)

1. Kishinevskiy gosuniversitet.
(Cadmium selenide--Electric properties)
(Zinc selenide--Electric properties)
(Photoconductivity)

KOT, M.V.; TYRZIU, V.G.

Some optical properties of thin layers of cadmium and zinc
selenides. Izv. vys. ucheb. zav.; fiz. no.4:13-18 '59.
(MIRA 13:3)

1. Kishinevskiy gosuniversitet.
(Cadmium selenide--Optical properties)
(Zinc selenide--Optical properties)

KOT, M.V.; SIMASHKOVICH, A.V.

Electrical conductivity of cadmium and zinc selenides. Izv.vys.
ucheb.zav.; fiz. no.3:125-131 '59. (MIRA 12:10)

1. Kishinevskiy gosuniversitet.
(Cadmium selenides--Electric properties)
(Zinc selenides--Electric properties)

Card 11/16

Electric and Photoconductivity of Al-Sb System Films SOV/57-58-8-6/37
Prepared by Vekshinskiy's Method

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State
University)

SUBMITTED: August 2, 1957

Card 3/3

Electric and Photoconductivity of Al-Sb System Films SOV/57-50-8-6/37
Prepared by Vekshinskiy's Method

is condensed on heated glass plates probably two compounds, AlSb and Al_9Sb are found. The latter is unstable at temperatures below 230°C . 3) The width of the forbidden zone in the Al_9Sb compound is about 1,6 eV. It is wider than in AlSb. The specific conductivity of AlSb is smaller by two orders than in Al_9Sb . At room temperature it is $1 \cdot 10^{-5} \text{ Ohm}^{-1} \cdot \text{cm}^{-1}$. These compounds exhibit a hole conduction. 4) The photoconductivity of newly prepared Al_9Sb samples is at room temperature by several times greater than that of AlSb. 5) A hypothesis is outlined concerning the causes of the disappearance of photoconductivity in massive samples and their destruction in a moist atmosphere. The causes are apparently connected with the compound Al_9Sb . The decomposition of Al_9Sb may in the presence of humidity lead to the formation of aluminum hydrate which promotes destruction. When the massive polycrystalline samples are kept in evacuated and tightly soldered ampoules for one year, no destruction occurs. There are 3 figures and 7 references, 6 of which are Soviet

Card 2/3

AUTHORS: Kot, M. V., Sorokin, G. P.

SOV/57-58-8-6/37

TITLE: Electric and Photoconductivity of Al-Sb System Films Prepared by Vekshinskiy's Method (Elektroprovodnost' i fotoprovodnost' plenok sistemy Al-Sb, poluchennykh metodom Vekshinskogo)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 8, pp 1657 - 1661 (USSR)

ABSTRACT: References 5 and 6 give a study of the electrical, optical and photoelectrical properties of films consisting of AlSb compounds condensed on cold and on heated bases according to the method of Vekshinskiy, Member, Academy of Sciences, USSR. In these papers the above authors investigated the properties of AlSb films which did not deviate from the stoichiometrical composition by more than 1%. For this reason it proved to be necessary to subject the properties of thin films of this compound to a closer investigation. This has been done in the present paper. The conditions for the preparation of the films are exposed in reference 5. The results presented permit to state the following: 1) When thin layers of Al-Sb are condensed onto cold glass plates only one AlSb compound is found which exhibits semiconductor properties. 2) When Al-Sb

Card 1/3

SOV/137-58-9-19746

Electrical Conductivity of CdSb Single Crystals

disordering of the lattice takes place; therefore, measurements were performed at temperatures $< 200^{\circ}$. A metallic form of σ was observed in the low-temperature range indicating the presence of degeneration of the electron gas. The calculated magnitude of the energy of activation of electrons from the basic zone ΔE_1 for this range is equal to $6 \cdot 10^{-3}$ ev. In the high-temperature range ΔE has a definite relationship with the periods of the lattice, which indicates an anisotropy of the properties of CdSb single crystals. In specimens with an admixture of Pb a change of the type of conductivity from the hole-type (in pure CdSb single crystals) to the electron-type is observed, as well as an improvement in the rectifying properties of the point contact.

L.M.

1. Antimony-cadmium crystals--Growth
2. Antimony-cadmium crystals--Electrical properties
3. Antimony-cadmium crystals--Temperature factors
4. Antimony-cadmium crystals--Temperature results

Card 2/2

SOV/137-58-9-19746

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 232 (USSR)

AUTHORS: Kot, M.V., Andronik, I.K.

TITLE: Electrical Conductivity of CdSb Single Crystals (Elektroprovodnost' monokristallov CdSb)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 209-214

ABSTRACT: A method for growing CdSb single crystals and the results of an investigation of the relationship between temperature and conductivity σ in various crystallographic directions are presented. Spectrographically pure Cd and Sb, which were melted together in pyrex ampules evacuated to a pressure of 10^{-3} mm Hg, served as the initial products. In the presence of a capillary or of an orienting priming tube in the lower part of the ampule and at rates of growth of 9-11 mm/hour, single crystals of the pure CdSb alloy and also of CdSb with an admixture of Pb were obtained. Three series of specimens were prepared, namely, 1) along the first plane of cleavage but perpendicularly to the second; 2) perpendicularly to the first plane of the cleavage; and 3) along both planes of cleavage. At 220°C and higher the mobility of the atoms of the alloy is great and a

Card 1/2

SOV/137-58-9-19749

Cathode Conductivity of CdSe Single Crystals

vacuum proceeds very slowly, but upon the introduction of air into the test space the HC falls suddenly to $5 \cdot 10^{-9}$ mho/cm. The induced conductivity is 3600 times greater than the HC under an accelerating potential of 4 ev and a primary current of $1.6 \cdot 10^{-6}$ amp. Under equal intensity the value of C increases with decreasing magnitude of the primary current and with increasing energy of the primary electrons. With a constant intensity, the induced conductivity increases nonlinearly with an increase in the energy of primary electrons, and the depth of their penetration also increases. A temperature relationship of C is discovered. With an increase in temperature the induced conductivity decreases. During simultaneous irradiation with integral light and electrons the law of additivity is fulfilled only when the magnitude of the photoelectric current is less than the current of the cathode conductivity.

L.M.

1. Single crystals--Electrical properties
2. Electrons--Energy
3. Cadmium-selenium crystals--Analysis
4. Radiation--Intensity

Card 2/2

SOV/137-58-9-19749

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 233 (USSR)

AUTHORS: Kot, M.V., Simashkevich, A.V.

TITLE: Cathode Conductivity of CdSe Single Crystals (Katodoprovodimost' monokristallov CdSe)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 201-207

ABSTRACT: Results of measurements of cathode conductivity (C) in relation to the energy and the current of primary electrons and also to the intensity of irradiation are described. All measurements were carried out at a 44-v potential difference on the specimen for which the rectification coefficient equals 1. Upon an increase of the energy of the primary electrons or of the radiation power the rectification coefficient increases, which is associated with the asymmetric incidence of the beam of electrons on the specimen. The bombardment with electrons removes the adsorbed gases from the surface and decreases the concentration of the surface levels, which is indicated by a sharp increase of heat conductivity (HC) from $2 \cdot 10^{-9}$ mho/cm at the beginning of the measurements to $6 \cdot 10^{-6}$ mho/cm after a 90-minute bombardment. The restoration of the initial magnitude of HC in a

Card 1/2

SOV/137-58-9-19745

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 232 (USSR)

AUTHORS: Kot, M.V., Sorokin, G.P.

TITLE: ~~Electrical and Optical Properties of the AlSb Alloys~~ (Elektricheskiye i opticheskiye svoystva soyedineniy AlSb)

PERIODICAL: Uch. zap. Kishenevsk. un-t. 1957, Vol 29 pp 183-193

ABSTRACT: An investigation of the temperature relationship of the conductivity in AlSb films (F) obtained by the Vekshinskiy method or on massive single-crystal and polycrystalline specimens. The optical properties were studied on F only. The specimens differed in magnitude and character of initial conductivity. The thickness of films was 0.05-1.0 μ . The F exhibited hole-type ("p") conductivity in a vacuum, but upon exposure to air the mechanism of conductivity in F with an excess of Al changed to the electron-type ("n"). For such specimens an energy system is adduced with the aid of which an attempt is made to explain the phenomena observed in air with F with an excess of Al. An AlSb alloy with an excess of either Al or of Se but without any admixture of foreign atoms has a hole-type conductivity mechanism in any temperature range. The activation energy of

Card 1/2

SOV/137-58-9-19747

Electrical Conductivity and Thermo-emf of the CdSb Alloy (cont.)

In compounds with admixtures of Al and Bi a semiconductive behavior of $\sigma(T)$ is observed throughout the entire temperature range investigated. An attempt is made to evaluate the activation energies ΔE_1 of the admixtures from $\sigma(T)$. In the presence of 0.1 atom-% Al or Bi, the $\Delta E_1 = 0.05$ ev and the compound possesses maximum values of α equal to 484 and 333 $\mu\text{V}/^\circ\text{C}$, respectively. The band gap is $\Delta E = 0.48$ ev in the presence of 0.1 atom-% Al and increases to 0.56 ev with ~ 5 atom-% Al; the behavior of Zn is similar. An increase in the concentration of Bi to 2.5 atom-% has practically no effect on the band gap, and upon the introduction of 5 atom-% Bi a mechanical mixture forms of Bi with the CdSb alloy. Admixtures of Zn and Bi sharply decrease the magnitude of α upon the increase of their concentration over 1 atom-% and 0.1 atom-%, respectively.

L.M.

1. Antimony-cadmium alloys--Conductivity 2. Antimony cadmium alloys--Temperature factors 3. Antimony-cadmium alloys--Electrical properties

Card 2/2

SOV/137-58-9-19747

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 233 (USSR,

AUTHORS: Andronik, I.K., Kot, M.V.

TITLE: Electrical Conductivity and Thermo-emf of the CdSb Alloy With
Admixtures of Foreign Atoms (Elektroprovodnost' i termo
e.d.s. sovedineniya CdSb s primesyami chuzherodnykh atomov)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 147-152

ABSTRACT: A study of the temperature relationship of the conductivity and the thermo-emf α of a CdSb compound alloyed with Zn, Al, and Bi in the 105-473°K temperature range. All specimens had hole-type conductivity. Upon the introduction of admixtures of Zn and Al (up to 5%) into the CdSb the activation energy in the region of the intrinsic conductivity increases. The formation of solutions of the initial compound with the emerging ZnSb and AlSb compounds is assumed. In the presence of ~1% of Zn in the low-temperature range a degeneration of the state of the holes is observed, and a further increase in the concentration of Zn probably brings about the degeneration of the impurity levels to a narrow impurity zone. In the presence of 5% Zn in the low-temperature region, metallic conductivity is observed.

Card 1/2

SOV/137-58-9-19751

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 233 (USSR)

AUTHORS: Kot, M.V., Lapushner, S.Kh.

TITLE: Electrical Conductivity [and] Thermo-emf of an SbZn Alloy
With Admixtures of Foreign Atoms (Elektroprovodnost' termo-
e.d.s. soyedineniya SbZn s primesyami chuzherodnykh atomov)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 139-145

ABSTRACT: A study of the temperature relationship (in the 250-625°K range) of the electrical conductivity σ and thermo-emf α of an SbZn alloy with admixtures of Cd, Pb, and Bi. An increase of σ and a decrease of α are observed with an increase in the impurity content. All the $\sigma(T)$ and $\alpha(T)$ curves have a similar appearance; in the high-temperature range a semiconductive character of the relationship $\alpha(T)$ becomes apparent. Upon a variation in the concentration of Cd from 0.1 to 5.0 atom-% σ varies from 20.0 to 50.0 mho/cm, ΔE varies from 0.56 to 0.35 ev and α from 239 to 116 $\mu\text{v}/\text{degree C}$. These parameters undergo similar variations for specimens that contain Pb and Bi impurities. $\alpha(T)$ was measured in relation to Cu at a temperature gradient on the specimen equal

Card 1/2

Distr: 4Ex(g)/4E2o/4E2d(b) 2 cys

✓ Electrical, optical, and photoelectric properties of the system Al-Sb in thin layers. M. V. Kot and G. P. Sorokin. *Fotoelek. i Optichesk. Yavleniya v Pribliozhenn. i Tuzh. Pervogo Vsesoyuz. Soveshchaniya, Kiev 1957*, 245-52 (Pub. 1959); cf. CA 53, 16711k.—Films having the compns. AlSb and Al₂Sb₃ resp., were studied. AlSb films thicker than 1000 Å. had the properties of massive layers. Stoichiometric AlSb compns. had a resistance of about 500 Ω/cm., exhibited hole cond. at all temp. ranges, and had a photoelec. threshold of 1.4-1.6 e.v. The compn., Al₂Sb₃ was nonstoichiometric at room temp., showed hole cond., and had a threshold higher than that of AlSb.

7
1- Jaf (may)
1- msc (JO)
1- KR (ms)
1- ITP (C)

4

KOT M V

USSR /Physical Chemistry. Crystals.

B-5

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25941

Author : M.V. Kot.

Inst : Kishinev University

Title : Electroconductivity and Thermo-EMF of Intermetallic Compound SbZn.

Orig Pub : Uch. zap. Kishinevsk. un-t., 1956, 24, 11 - 18

Abstract : The electroconductivity and thermo-emf of alloys of Zn and Sb containing 48 to 65 atom % of Zn were measured in the range of 250 to 625°K. It was found that the width of the forbidden zone of the compound ZnSb was 0.6 ev.

Card : 1/1

KOT, M.V.
USSR/Physical Chem. Crystals

B-5

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22167

Author : M. V. Kot

Inst : Not given

Title : Electrical conductivity and thermo-electromotive force (emf) of intermetal compound CdSb.

Orig Pub : Uch. Zap. Kishonevskago un-ta, 1956, 24, 3-10

Abstract : Samples of CdSb with 50-44.7 at. % of Cd were obtained by fusion of the components at 700° in an evacuated pyrex ampoule. The conductivity is measured in the interval 103-473°K. A semiconductivity in the whole interval of temperatures was noticed in the use of samples of stoichiometric composition. A metallic conductivity appears when there is an excess of Cd or of Sb in the low temperature area. The positive sign of thermo-emf (relative to Cu) on the entire interval of temperatures for all samples denotes the hole-conductivity. In conclusion, there exists a covalent bond between atoms of Cd and Sb and solid solutions of subtraction are formed by excess of Cd and Sb.

Card 1/1

-60-

KOT, M. V.
and
IGNAT'YEV, Ye. A.

"Electric Conductivity and Thermoelectromotive Force of Antimony and Selenium Alloys," pp 19-24, 111, 2 ref

Abst: Results are given of a study of electric conductivity and thermoelectromotive force of a compound of Sb Se with certain deviations from stoichiometry and with a preparation of alloys from more pure components. It is shown that the compound of Sb Se has a hole conductivity for excesses of antimony as well as for excesses of selenium. The energy of activation in the region of natural conductivity reaches nearly one electron volt.

SOURCE: Uchenyye Zapiski Kishinevskogo Gos. Un-ta (Scientific Notes of the Kishinev State University), Volume 24 (Physics-Mathematics), Kishinev, Moldavia State Publishing House, 1956.

Sum 1854

KOT, M. V.

"Electric Conductivity and Thermoelectromotive Force of an Intermetallic Compound of SbZn," pp 11-18, ill, 8 ref

Abst: An examination is made of the electrical properties of a compound of SbZn for various deviations from stoichiometry and for different thermal regimes, which are present in the preparation of samples.

SOURCE: Uchenyye Zapiski Kishinevskogo Gos. Un-ta (Scientific Notes of the Kishinev State University), Volume 24 (Physics-Mathematics), Kishinev, Moldavia State Publishing House, 1956

Sum 1854

KOT, M. V.

"Electric Conductivity and Thermoelectromotive Force of an Intermetallic Compound of CdSb," pp 3-10, 111, 6 ref

Abst: The author examines the temperature relationship of electric conductivity and differential thermoelectromotive force of a CdSb compound for small as well as large deviations from stoichiometry. The results of the examination show that the CdSb compound may relate to the class of admixture semiconductors with hole conductivity. The electrical properties of CdSb make it possible to assume the existence of a covalent bond between the atoms of the compound.

SOURCE: Uchenyye Zapiski Kishinevskogo Gos. Un-ta (Scientific Notes of the Kishinev State University), Volume 24 (Physics-Mathematics), Kishinev, Moldavia State Publishing House, 1956

Sum 1854

KOT, M. V.

"Electron Optical Parameters of Simple Electric Lenses"
Uch. Zap. Kishinevsk. un-ta, 11, 1954, 135-152

Electron optical parameters of simple cylindrical and axially symmetrical electric lenses are studied. The obtained results proved that statements by C. J. Davidson and Calbik (Phys. Rev. 42, 580, 1932 on the independence of the focal length from geometrical parameters of cylindrical lenses are not realized. (RZhFiz, No 9, 1955)

SO: Sum-No 787, 12 Jan 56

KOT, M. V.

"Field and Electron Optical Parameters of Single Axially Symmetrical Electrostatic Lenses"

Uch. Zap. Kishinevs. Un-te, 11, 1954, 119-134

Approximate formulas are derived for finding the field distribution. The position of the equipotential planes depends exclusively on the geometrical parameters of the lens. Computed focal distances for lenses with a central grid electrode were in good agreement with experimental data by other researchers. (RZhFiz, No 9, 1955)

SO: Sum-No 787, 12 Jan 56

KOT, M. V.

"The Field and the Electron Optical Parameters of the Immersion Objective"
Uch. Zap. Kishinevsk, Un-ta, 11 1954, 73-78

Approximate formulas are derived for finding the potential distribution along the symmetry axes of the immersion objective, based on assumption that the distances between the cathode and the first electrode and between the first and second electrode are large as compared with the radius aperture of the first electrode. It was established that the position of the equipotential plane of the immersion objective depends on its geometrical parameters and the ratio of first to second electrode potential. (RZhFiz, No 9, 1955)

SO? Sum-No 787, 12 Jan 56

NEUDAKHINA, A.I.; KOT, M.K.; VERTESHEV, M.S.

Quantitative determination of ~~cation~~ and anion exchangers in
their mixtures. Zav. lab. 30 no.6:674 '64 (MIRA 17:8)

1. Novocherkasskiy politekhnicheskiy institut imeni Ordzhonikidze.

REF 1/7

KOT, M.F., brigadir.

Increase the production and lower the costs. Mekh. sil'. hosp. 9
no.1:3-4 Ja '58. (MIRA 11:2)

1. Traktornaya brigada Khmel'nits'koi mashinno-traktornoj stantsii,
Khmel'nitskoi oblasti.
(Field crops) (Machine-tractor stations)

L 35490-65

ACCESSION NR: AP8007838

and is determined by the distribution and mobility of dislocations. There is a proportionality between the microhardness and the heat of formation of $Al^{III}B^{III}V$. The viscosity of the samples with in the $\{111\}$ plane is equal to $3.4 \cdot 10^{-3}$ g.cm. Orig. art. has: 2 formulas, 5 figures, and 1 table.

ASSOCIATION: Institut fiziki tverdogo tela i poluprovodnikovoy elektroniki (Institute for Solid State Physics and Semiconductor Electronics)

SUBMITTED: 10Jan64

INCL: 00

SUB CODE: SS, EC

NO REF SOV: 004

OTHER: 003

Gord

2/2

35496-05 ENT(1)/ENT(m)/EWP(a)/EWA(d)/T/TTP(t)/EME(b)/EWA(h) P2-6/Feb
 ACCESSION NR: AP500783D 1.2(a) JD/AT 8/0485/64/000/003/0001/0008

AUTHOR: Kravchenko, A.F.; Kot, E.N.; Divak, M.I.

TITLE: Microhardness of gallium arsenide

SOURCE: AN 656R, Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1964, 91-95

TOPIC TAGS: gallium arsenide, gallium arsenide hardness, single crystal hardness, microscope hardness, semiconductor hardness, semiconductor crystal structure

ABSTRACT: Only a few papers deal with the microstructure of GaAs (see e.g., G. A. Wolf, L. Toman, F. I. Field, J. C. Olav, Semiconductors and Phosphors, New Jersey, 1958 for polycrystalline samples). The present paper reports on measurements of the microhardness of oriented monocrystals having a free electron concentration of $n \sim 10^{17} \text{ cm}^{-3}$ and a dislocation density in the {111} plane between $2 \cdot 10^4$ and $5 \cdot 10^5 \text{ cm}^{-2}$. Samples were polished by etching (1 part HF, 3 parts HNO₃, and 2 parts H₂). The microhardness in the {111} plane is $H = 650 \text{ kg/mm}^2$, in {110} - 510 kg/mm^2 . Annealing at temperatures not higher than 400°C increases the microhardness, which also depends on the orientation of the indenter with respect to the crystallographic directions.

1/2
 Card

WIACKOWSKI, S.K.; WIACKOWSKA, L.; CRUMPACKER, J.; KOT, J.

Biological control of the plum moth *Laspeyresia funebrana* Tr.
(Lep. Tortricidae) utilizing the egg parasite *Trichogramma*
cacaeciae March (Hym. Trichogrammatidae). Pt. 2. Roczn.
nauk roln rosl 87 no.3:545-557 '63.

KOT, J.

Experiments on the use of Tichogramma evanescens Westw. for the control of vegetable garden pests, Plutella maculipennis Curt., Peiris brassicae L., and Pieris rapae L. p. 83.

EKOLOGIA POLSKA. SERIA B. (Polska Akademia Nauk. Komitet Ekologiczny)
Warszawa, Poland. Vol. 5, no. 1, 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 9, no. 2, Feb. 1960

Uncl.

POLAND / General and Specialized Zoology. Insects. P
Physiology and Toxicology.

Abs Jour : Ref Zhur - Biol., No 17, 1958, No 78246

Author : Kot, Jan; Wasylik, Antoni
Inst : Entomological Laboratory of the University of
Leningrad

Title : Insect Photoperiodism in the Light of the Works
of Danilevskiy

Orig Pub : Ekol. polska, 1957, B3, No. 3, 205-215

Abstract : No abstract given.

Card 1/1

BORODIN, V.I.; KOT, I.I.

Device for the winding of springs with folded supporting coils.
Ratsionalizatsiia no.10:21 '62.

BORODIN, V.I.; KOT, I.L.

Kiev innovators suggest. Mashinostroitel' no.5:38-39 My '62.
(Kiev--Technological innovations) (MIRA 15:5)

KOT, Henryk, (Katowice)

Cartographic Polonica in collections in Vienna with particular
consideration of the Austrian National Library. Czasop geogr
35 no.2:159-172 '64

1. KOT, G. S.
2. USSR (600)
4. Metal Cutting
7. Work methods of V. S. Loginov, lathe operator at the Leningrad Factory of Experimental Mechanics of the Main Administration of Fishing Boat Construction, Ryb. khoz. 29 No. 4, 1953.
9. Monthly List of Russian Accessions, Library of Congress, April, 1953. Uncl.

POLYAKOV, A.I.; KOT, G.A.

Geochemistry of thorium in the nepheline syenites of the Kola Peninsula.
Geokhimiia no.6:505-517 Je '64. (MIRA 18:7)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo AN
SSSR, Moskva.

POLYAKOV, A.I.; KOT, G.A.

Distribution of thorium in the minerals of nepheline syenites
in the Lovozero Tundras. Geokhimiia no.1:73-85 Ja '65. (MIRA 18:4)

1. Institut geokhimi i analiticheskoy khimii imeni Vernadskogo
AN SSSR, Moskva.

SOKOLOWSKA-DEKOWA, Antonina; GLINKOWA, Krystyna; KOT, Edward; GUSDALSKA,
Bozena; PAKULOWA, Janina

Transferrin in secondary anemias in children. Pol. tyg. lek. 19
no. 40:1520-1521 5 0 '64

1. Z I Kliniki Pediatrycznej Akademii Medycznej w Lublinie
(Kierownik: doc. dr. med. A. Sokolowska-Dekowa) i z laboratorium
Szpitala PKP w Lublinie (Kierownik: lek. med. W. Kot).

KOT, A. V.

PA 243T51

USSR/Mining - Hydraulicking, Equipment 30 Sep 52

"Hydraulic Giant With Remote Control and Telescopic Shifting Device," Engrs A. V. Kot, V. G. Kirilenko, Giproorgpromzhilstroy of Min of Coal Industry

"Byul Stroit Tekh" No 18, pp 20,21

Briefly describes GDB-250 monitor, which may be moved up to 6 m toward working face during hydraulicking operation by workman at control desk located at safe distance. Remote control permits keeping monitor in position where operation gives maximum effectiveness which is especially high in undercutting operation.

243T51

KCT, A. V.

Mining Machinery

Hydromonitor GBE-250. Mekh.trud.rab., 6, No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 195²₈. Unclassified.

KOT, Av. 19, Krasnodarskiy rayon (Smolenskiy rayon, Krasnodarskiy rayon).

Learning European folkhood in bee colonies. Veteran of
Krasnodarskiy rayon (1945-1946) (MIRA 1946)

KGT, A.P.

Crushing of ovarian cysts and the enucleation of a persistent corpus luteum in cows. Veterinariia 40 no.11:57-58 N '63.
(MIRA 17:9)

1. Glavnyy veterinarnyy vrach Sovkhoza imeni Lenina, Minskoy oblasti.

KOT, A. P. (Veterinary Surgeon, Smolevichi Raion, Minsk Oblast').

"Treating bee families affected with European foul brood."

Veterinariya, Vol. 38, No. 4, 1961, p. 57.

KOT, A.I., kand. med. nauk; KAZACHENOK, V.M., aspirant.

Complications in acute appendicitis. Zhurav. Bbl. 9 no. 6:80
Jo '63. (MIRA 1775)

1. Iz kafedry obshchey khirurgii (zaveduyushchiy - 1966. A.S.
Gnilerybov) Minskogo meditsinskogo instituta (rektor A.A. Klyucharev)
i khirurgicheskogo otdeleniya 3-ey klinicheskoy bol'nitsy g. Minska
(glavnyy vrach A.I. Korktov).

BULAY, P.I.; KOT, A.I.

Experience in the treatment of thermal burns. Zdrav. Bel. 9
no.8:71-72 Ag'63 (MIRA 17:3)

1. Iz kafedry obshchey khirurgii (zav. -- zasluzhennyy deyatel'
nauki UkrSSR, prof. T.Ye. Gnilorybov) Minskogo meditsinskogo
instituta.

GNILORYBOV, T.Ye., prof.; KOT, A.I., kand. med. nauk

Transplantation of the pituitary gland. Zdrav. Bel. 9 no.3:
6-8 Mr'63 (MIRA 16:12)

1. Iz kafedry obshchey khirurgii (zav. - prof. T.Ye. Onilorybov) Minskogo meditsinskogo instituta.

KOT, A.I.

Experimental basis for necrectomy of limited thermal third-degree
burns in radiation sickness. Zdrav. Bel. 7 no.3:40-43 Mr '61.
(MIRA 14:3)

1. Iz kafedry obshchey khirurgii (nauchnyy rukovoditel' - professor
A.S.Revnov) Minskogo meditsinskogo instituta i Nauchno-issledovatel'-
skoy laboratorii Ministerstva zdravookhraneniya BSSR (ispolnyayushchiy
obyazannosti nachal'nika A.V.Lipen').
(BURNS AND SCALDS) (RADIATION SICKNESS)

KOT, A. I.

Cand Med Sci - (diss) "Clinical aspect, course, and treatment of thermal burns of the third degree in conjunction with radiation sickness. (Experimental studies)." Smolensk, 1961. 19 pp; (Ministry of Public Health RSFSR, Smolensk State Med Inst); 260 copies; price not given; (KL, 10-61 sup, 225)

KOT, A.G., Engh.; KUTSENOK, R.Ye., Engh.; TANAKO, A.T., Engh.

Separation of molting sand. Mashinostroyeniye no. 145 60-1 196.
(MIRA 14:4)

1 11012-65 EWT(n)/EPT(n)-2/1/A(s)/T/EWP(s)/EPA(Db)-2/EWP(b) Pa-4 JD/BA/WB
ACCESSION NR AM1004428 BOOK EXPLOITATION 8/

Prof. Aleksandr Akimovich (Doctor of Technical Sciences)

Water treatment and water conditions in atomic power plants (Vodopodgotovka i
vodnyy rezhim atomnykh elektrostantsiy), Moscow, Atomisdat, 1964, 345 p.
illus., biblio., fold, distr. 1,500 copies printed.

TOPIC TAGS: water, water desalination, water moderated reactor, nuclear power
reactor, metal corrosion, stainless steel

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first and second contents of a nuclear power station -- 131

Ch. VII. Formation of deposits in the flow-through part of medium and high
pressure turbines -- 239

Card 1/2

KOT, A.A., kand.tekhn.nauk; DEYEVA, Z.V., kand.tekhn.nauk

Concerning the derived transition zone of once-through boilers
with super-high and supercritical pressures. Elek.sta. 33 ;
no.12:6-9 D '62. (MIRA 16:2)

(Boilers)

KOT, A. A., Dr. Tech. Sci. (diss) "Investigation of Wear and Deposition of Minerals in Steam System of Heat-Driven Equipment," Moscow, 1961, 30 pp. (Power Engr. Instit. im G. M. Krzhnzyanovskiy) 200 copies (KL Supp 12-61, 261).

KOT, A.A., kand.tekhn.nauk

Damages to the screen pipes of steam boilers due to deposits of
iron oxides. Elek.sta. no.6:26-28 Je '60. (MIRA 13:7)
(Steampipes) (Boilers--Incrustations)

PHASE I BOOK EXPLOITATION

SOV/3854

Akol'zin, P. A., P. N. Andreyev, I. E. Apel'tsin, S. M. Gurvich, A. A. Kot, Yu. M. Kostrikin, I. I. Koshelev, A.P. Mamet, Yu. O. Novi, M. M. Sendik, I. Kh. Khaybullin

Spravochnik khimika-energetika. tom 1: Spravochnyye materialy obshchego naznacheniya (Handbook of Chemistry in Power Engineering. Vol 1: General Reference Material) Moscow, Gosenergoizdat, 1960. 327 p. 20,000 copies printed.

Eds.: V.A. Golubtsov, S.M. Gurvich, Yu. M. Kostrikin, and A.P. Mamet; Tech. Ed.: K. P. Voronin.

PURPOSE: This handbook is intended for chemists in the field of power engineering, personnel of laboratories, scientific research institutes, and planning and control organizations, as well as for students of universities and tekhnikums.

COVERAGE: This is the first of a three-volume handbook of chemistry in power engineering. It includes data on the water system of boilers, causes of corrosion and methods for controlling it. It also contains general reference material on measures and units, chemical compounds, water and solutions, solubility of substances in water and water vapor at various temperatures, electrochemistry, gases, specifications and prices for certain reagents and materials. The book includes tables, charts, and diagrams. No personalities are mentioned. There are 52 references: 39 Soviet, 10 English, 2 German, and 1 Swedish.

Card 1/12

KOT, Aleksandr Akimovich; REZNIKOV, M.I., red.; VORONIK, X.P., tekhn.red.

[Water regime in steam boilers; physicochemical processes in the water and steam media of heat power units] Vodnyi rezhim parovykh kotlov; fiziko-khimicheskie protsessy v vodnoi i parovoi sredakh teplosilovykh ustanovok. Moskva, Gos.energ.izd-vo, 1960. 287 p. (MIRA 14:1)

(Boilers)

SCV/91-59-11-19/27

The Purity of Steam Entering a Turbine

and TsKTI from a SVK-150 turbine of the Cherepets GRES.
There are 2 tables and 1 Soviet reference.

Card 2/2

8 (6)

SOV/91-59-11-19/27

AUTHORS: Kot, A.A., Candidate of Technical Sciences, and
~~Deyeva, Z.V.~~, Engineer

TITLE: The Purity of Steam Entering a Turbine

PERIODICAL: Energetik, 1959, Nr 11, pp 28-30 (USSR)

ABSTRACT: The authors determined the permissible quantities of SiO_2 and Na_2SO_4 in steam entering a turbine. At a steam pressure of 125 atmospheres and a temperature of 480°C , the SiO_2 content of steam must not exceed 0.01-0.015 mg/kg, while the Na_2SO_4 content must not be higher than 0.04-0.06 mg/kg. The SiO_2 content was determined by a FEK-M photocalorimeter, whose accuracy must be taken into consideration. The authors mention the experimental work of the Vodnoye otdeleniye VTI (Water Department of VTI) concerning the investigation of scale on turbine blades, which was performed in 1958. In 1957, VTI and MO TsKTI established in a joint work that the salt content of steam is composed basically of sodium salts. The data of the authors confirm the data obtained by VTI

Card 1/2

KOT, A. A., Doc Tech Sci (diss) -- "Investigation of the transportation and deposition of mineral impurities in the steam lines of heat-and-power installations". Moscow, 1959. 32 pp (Min Higher Educ USSR, Moscow Order of Lenin Power Engineering Inst), 150 copies (KL, No 20, 1959, 111)

KOT, H.A.

BULGAKOVA, N.V., inzh.; DEYEVA, Z.V., inzh.; KOT, A.A., kand. tekhn. nauk; RAKOV, K.A.
kand. tekhn. nauk

Using chemically desalted feed water in high-pressure and super-
pressure once-through boilers. Elek. sta. 29 no. 3:8-12 Mr '58.
(Feed water) (MIRA 11:5)

KOT, A.A.
DEYEVA, Z.V., inzh.; KOT, A.A., kand.tekhn.nauk.

Solubility of sodium chloride in superheated steam. Elek.sta.
29 no.1:14-16 Ja '58. (MIRA 11:2)
(Salt) (Steam)

KOT, A.A., kand. tekhn. nauk.; MALAKHOVA, Z.A., teknik

Method of silica removal from steam condensate. *Energetik* 6 no. 1:13-
15 Ja '58. (MIRA 11:8)

(Silica)
(Filters and filtration)

KOT, A.A., kand.tekhn.nauk; PSHEMENSKIY, A.A., inzh.

Investigating the solubility of quartz and sodium metasilicate in
superheated steam. Elek.sta. 28 no.12:14-19 D '57 (MIRA 12:3)
(Steam, Superheated) (Quartz) (Sodium silicates)

The effectiveness of washing the steam of high pressure boilers. (Cont.)

104-4-6/40

shows that no significant deposits of silica are formed if the silica concentration of the steam is less than 0.02 - 0.03 mg/kg, and to achieve this the silica content of the washing water should not exceed 0.18 - 0.30 mg/kg. Because of the relatively high carry over of silica from the washing water the effectiveness of steam washing was somewhat reduced but by separating the feed to the boiler and washing the steam with condensate the proportion of chemically purified make-up may be much increased. If it is desilicated to 1 mg/l silica and the addition of chemically purified make-up water is 30% boiler blow-down may be about 1.6% or much less if stepwise evaporation is used. In all the experiments the salt content of the super heated steam is independent of the amount of chemically purified water added. In order to verify the operation of the separate feed system with a considerable proportion of chemically purified make-up water it would be advisable to make corresponding tests at a heat and electric power station.

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There are 9 figures and 1 Slavic reference.
AVAILABLE:

The effectiveness of washing the steam of high pressure boilers. (Cont.)

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taken from the centre of the drum (clean section steam) and from the ends near the right and left hand sides of the drum (salty section steam). Samples of washing water were taken from the centre of the drum and samples of boiler water from the centre of the drum (clean section) and from the blow-down lines (salty section). The results of the work are presented in the form of graphs and tables. And it is shown that the silica content of the steam from the salty sections is higher than that of the steam from the clean section. However, the silica content of the washed steam is practically independent of the silica content of the boiler water in the different sections. It was shown that when 14% of chemically purified water was added to the feed water the silica content of the washed steam was higher than when the chemically purified water was supplied separately and the steam was washed with condensate. Relationships are plotted between silica contents of steam and silica contents of boiler water and between these figures for washing water and boiler water, washing water and feed water, and others. Increasing the alkalinity of the boiler water (to phenolphthalein) reduces the amount of carry over.
2/3 Operating experience with a 50 MW high pressure turbine

104-4-6/40

AUTHOR: Kot, A.A., Candidate of Technical Sciences and
Pshemenskiy, A.A., Engineer.

TITLE: The effectiveness of washing the steam of high pressure
boilers. (Effektivnost promyvki para kotlov vysokogo
davleniya)

PERIODICAL: "Elektricheskie Stantsii" (Power Stations), 1957,
Vol. 28, No.4, pp. 18 - 22 (U.S.S.R.)

ABSTRACT: The effectiveness of washing the steam of a high pressure boiler type ПK-14 has been investigated. The output of the boilers is 270 t/h at a pressure of 110 atm. and a superheat temperature of 510 C. The internal diameters of the main and sub-dividing drums are 1 300 and 900 mm respectively and the output of the salty sections of stepwise evaporation in the drums is 16%. The main drum is equipped with a steam washing device and the sub-dividing drum is fitted with directional shields and screens before the water by-pass tubes.

The investigations of steam washing were carried out whilst delivering chemically purified water directly into the feed water and separately; steam condensate for steam washing and chemically purified water (about 14%) directly into the boiler drum. The chemically purified water was desilicated. During the investigations samples of washed steam from the drum were

KOT, A.A.

AKOL'ZIN, P.A.; GURVICH, S.M.; KOTLYAR, R.V.; KOT, A.A.; MAMET, A.P.;
MIKHAYLENKO, P.S.; PROKHOROV, F.G.; SOKOLOV, I.M.; CHERNOVA, L.A.;
SHKROB, M.S.; YANKOVSKIY, K.A.; GUREVICH, L.S.; POLYAKOV, V.V.

To the editors of "Energetik." Energetik 5 no.3:11-12 Mr '57.

(MLRA 10:3)

1. Vsesoyuznyy teplotekhnicheskiy institut im. Dzerzhinskogo (for Akol'zin, Kot, Yankovskiy) 2. Tsentral'nyy kotloturbinnyy institut (for Gurvich, Mamet,) 3. Teplo-elektro-proekt (for Gurevich). 4. Ministerstva elektrostantsiy (for Kotlyar, Prokhorov). 5. Teplovaya elektricheskaya tsentral'naya stantsiya No.9 (for Mikhaylenko, Polyakov) 6. Perevazochnyy etapnyy punkt (for Sokolov). 7. Moskovskoye rayonnoye upravleniye energokhozyaystva (for Chernova). 8. Energeticheskiy institut Akademii nauk SSSR (for Shkrob).

(Boilers)

Concerning alkali-safe conditions of boiler water. ⁶⁴³(Cont.)

the order of 100 mg/l reckoned as PO_4^{3-} and the minimum concentration of phosphates in the water of the clean section should be of the order of 5 to 7 mg/l reckoned as PO_4^{2-} and it is essential that the boiler water should be alkaline to phenol phthalein.

The conditions which ensure purely phosphate alkalinity are the absence of excessive intakes of raw water into the turbine condensers and high quality of distillate from the evaporators. If the boiler is fed with purified water this condition can hardly be achieved. If it is necessary to reduce the amount of silicic acid carried over, the sulphate-alkali boiler water condition is recommended, which makes it possible to ensure safe operation of the boilers even when fed with purified water. 6 figures, 5 literature references (4 Russian).

AVAILABLE:

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Concerning alkali-safe conditions of boiler water. (Cont.)

also the ability of sodium phosphate to passivate steel make the zero-hydrate-alkaline condition a reliable means of preventing inter-crystallite corrosion. However, in practice certain aspects of this practice require to be cleared up.

The maximum alkalinity can be determined on the assumption that all of the alkalinity is due to the presence of the most alkaline compound $\text{-Na}_3\text{PO}_4$. The lower limit is set by the condition of preventing scale-formation and general corrosion, for which it is usually taken that the alkalinity titrated against phenol-phthalein is equal to 9 mg/l (pH approx.10).

A graph is plotted showing the change in the upper limit of the alkali number of boiler water under given conditions as a function of the concentration of PO_4^{2-} . A graph is plotted of the ratio of the alkalinity to phenol-phthalein to that to methyl-orange of boiler water from the salty section against the value of this ratio in the clean section, with a boiler pressure of 110 atm. In practice a purely phosphate alkalinity can only be maintained in condensing power stations, the boilers of which are supplied with high quality condensate with make-up from distillate from evaporators or de-salted water. A graph is plotted of the quantity of caustic soda formed in the salty sections of boilers with different hardnesses caused by the presence of calcium and magnesium bicarbonates in the feed water. The data shows that the concentration of caustic soda in the

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concentration of excess phosphates in this stage should be of

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AUTHOR: Kot A.A. Akol'zin P.A., Candidate of Technical Sciences, Kagan, D.Ya., Candidate of Technical Sciences and Kot A.A., Candidate of Technical Sciences (All-Union Thermo-technical Institute, V.T.I.)

TITLE: Concerning alkali-safe conditions of boiler water. (O shchel-ochnobezopasnykh rezhimakh kotlovoy vody).

PERIODICAL: "Teploenergetika" (Thermal Power), Vol. 4, No. 6, pp. 32 - 35 (U.S.S.R.) 1959

ABSTRACT: The main cause of inter-crystallite corrosion of the metal of boiler drums is the aggressive action on stressed metal of boiler water concentrate. Damage is promoted by the presence in the boiler water of corrosive alkali, the concentration of which may reach dangerous values because of local evaporation of water. At temperatures above 300 °C, which are usually found in high pressure steam boilers, signs of inter-crystallite corrosion appear with a 5% solution of caustic soda.

The most acceptable condition of boiler water which ensures the absence of inter-crystallite corrosion in high and super-high pressure boilers is to maintain in them zero hydrate i.e. purely phosphate alkalinity. This is achieved by introducing into the boiler water various phosphate salts of sodium. The absence of an accumulation of caustic soda in evaporating water containing purely phosphate alkalinity and

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SOV/112-59-5-8563

Investigation of Salt and Silicate Behavior in the SVK-150 Turbine Steam Path

in the inlet steam was 0.05-0.2 mg/kg. As the load was increased up to its rated value, the silicic acid drag-out from the turbine stopped. The silicic acid evolved from the high-pressure casing was deposited in reheaters. The silicic acid is deposited on the turbine blades predominantly in a slightly water-soluble form. The drag-out of silicate deposits from the turbine steam path on an abrupt load drop can be explained by different expansion coefficients of the metal and the deposit; when the steam temperature changes, the deposit cracks and peels off the blade surface. To prevent silicate-deposit formation, the permissible silicic-acid concentration in the steam should not exceed 0.015 mg/kg.

N.F.K.

Card 2/2

SOV/112-59-5-8563

8(6)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 5,
pp 23-24 (USSR)

AUTHOR: Kot, A. A., and Zenkevich, Yu. V.

TITLE: Investigation of Salt and Silicate Behavior in the SVK-150 Turbine Steam
Path and in Reheaters

PERIODICAL: V sb.: Vnutrikotlovyye fiz.-khim. protsessy, vodopodgotovka i
vodn. rezhimy kotlov na elektroost. vysokikh i sverkhvysokikh parametrov. M.,
AN SSSR, 1957, pp 300-310

ABSTRACT: Results of an experimental investigation conducted on an SVK-150
turbine are presented. It was found that silicate deposits readily emerge from
the turbine steam path on an abrupt load drop accompanied by a corresponding
reduction of the stage steam pressure. Experiments under such conditions
showed that silicic-acid concentration in the outlets of high-pressure and
medium-pressure casings was as high as 10-25 mg/kg, while its concentration

Card 1/2

ZENKEVICH, Yu.V., kandidat tekhnicheskikh nauk; KOT, A.A., kandidat tekhnicheskikh nauk.

Behavior of salts and silicic acid compounds in the flow passage of the SVK-150 turbine and in industrial superheaters. Elek.sta. 27 no.2:13-19
F '56. (MLRA 9:6)
(Steam turbines--Incrustations) (Superheaters)

KOT, A.A., kandidat tekhnicheskikh nauk.

Water conditions in high-pressure boilers. Energetik 4 no.10:
31-32 0 '56. (MLBA 9:11)
(Boilers) (Feed water)

AID P - 4954

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 3/21

Author : Kot, A. A., Kand. Tech. Sci.

Title : Scrubbing the steam of drum boilers of high and super-high pressures.

Periodical : Teploenergetika, 8, 14-17, Ag 1956

Abstract : Results of steam scrubbing obtained in operating conditions are discussed. The considerable effectiveness of steam scrubbing by a condensate is demonstrated. Table. 4 diagrams.

Institution : All-Union Heat Engineering Institute

Submitted : No date

KOT, A. A., and ZENKOVICH, Yu. V.

First results of thermo-chemical tests of drum type, very high pressure and temperature boilers. Energi mashinostroenie, no 1, 1956. p. 1

"TP-240" for 240 tons per hour of steam of 100 - 185 atm., 550°C.
The article gives the results of tests on the first Soviet made boiler of this type produced at the Laganrog works. The tests were made at various steam pressures and recommendations are made about the quality of steam and the water conditions for the boiler. The results are given with particular reference to the salts content of the steam.

Abstract - D 470255

KOT, A. A. Master of Science and LOBANOV, V. P. Master of Science

"Formation of Deposits on Steam Turbine Blades and Its Influence on the Efficiency of the Turbines," paper presented at the 5th World Power Conference, Vienna, 1956.

In Branch #5

KOT, A.A.

AID P - 1829

Subject : USSR/Engineering

Card 1/2 Pub. 110-a - 6/16

Authors : Zhirnov, N. I., and Kot, A. A., Kands. of Tech. Sci.

Title : Continuous blowdown from high-pressure boilers into the drums of medium-pressure boilers

Periodical : Teploenergetika, 3, 23-27, Mr 1955

Abstract : The authors investigated the problem at a power station equipped with both kinds of boilers. They describe the deconcentrator system used which consists of throttle valves placed in the blowdown pipes of every high-pressure boiler. These pipes are connected with a main pipeline leading the discharge into the medium-pressure boilers. This system was found to be much more economical than the blow-down into the atmosphere, and also greatly reduced scale formation on turbine blades. The authors present detailed analytical calculations of the extent of the economy obtained. They recommend the application of this system in other power stations. Three drawings.

KOT, A. A.

AID P - 1391

Subject : USSR/Electricity

Card 1/1 Pub. 26 - 18/30

Author : Kot, A. A., Kand of Tech. Sci.

Title : New laboratory ionium filters and vessels.

Periodical : Elek. Sta., 2, 50-52, F 1955

Abstract : The author describes new filters made of transparent organic glass. The older types were often damaged when used in the analysis of steam condensate and in some laboratory measurements. The new type was developed by the Water Section of the All-Union Heat Engineering Institute.
6 drawings.

Institution: None

Submitted : No date

KOT, A.A.
CHERNOVA, L.A.

Remarks on A.A.Kot's, S.A.Konovalov's and I.N.Rozenganz' article
"Productivity of saline sections of boilers with staged evaporation."
Elek.sta. 25 no.10:56 0 '54. (MLRA 7:11)

1. Nachal'nik Khimsluzhby Mosenergo.
(Steam boilers) (Kot, A.A.) (Konovalov, S.A.)

Handwritten:
Kot, A.A.
Konovalov, S.A.
Rozenganz, I.N.